(FILE 'HOME' ENTERED AT 07:42:03 ON 06 OCT 2003)

FILE 'BIOSIS, MEDLINE, INPADOC, CAPLUS' ENTERED AT 07:42:59 ON 06 OCT 2003

L1	277	DEXTRAN AND PEG AND BLOOD
L2	212	DUPLICATE REMOVE L1 (65 DUPLICATES REMOVED)
L3	10731	(PLASMA OR BLOOD) AND VISCOSITY AND (IMPROV? OR INCREAS? OR ENH
L4	7477	((PLASMA OR BLOOD)(5A)VISCOSITY) AND (IMPROV? OR INCREAS? OR EN
L5	3667	((PLASMA OR BLOOD)(5A)VISCOSITY)(10A)(IMPROV? OR INCREAS? OR EN
L6	2	L5 AND PEG
L7	166	L5 AND DEXTRAN
L8	112	DUPLICATE REMOVE L7 (54 DUPLICATES REMOVED)

L Number	Hits	Search Text	DB	Time stamp
1	0	plasma same viscosity same (centipoise or cp) same dextran same (peg or "polyethylene glycol")	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/10/06 08:57
2	6	plasma same viscosity same (centipoise or cp) same dextran	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/10/06 08:59
3	122	plasma same viscosity same (centipoise or cp)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/10/06 09:00
4	42	(increas$ or improv$) adj10 (plasma adj5 viscosity)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/10/06 09:03
5	36	(increas$) adj10 (plasma adj5 viscosity)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/10/06 09:34
6	33	(increas$) adj5 (plasma adj5 viscosity)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/10/06 09:34

ANSWER 103 OF 112 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1966:78894 CAPLUS
DN 64:78894
OREF 64:14831d-g
TI Effect of Rheomacrodex and Macrodex on factors governing the flow properties of human blood
AU Groth, Carl Gustav; Thorsen, Gunnar
CS Karolinska Inst., Stockholm
SO Acta Chirurgica Scandinavica (1965), 130(6), 507-20
CODEN: ACHSA3; ISSN: 0001-5482
DT Journal
LA English
AB The effects of infusing solns. contg. **dextran** with mean mol. wts. of 40,000 (Rheomacrodex) and 75,000 (Macrodex) and glucose soln. on hematological factors governing the flow properties of blood, namely the hematocrit, plasma viscosity, and erythrocyte aggregation, were studied in man. The plasma viscosity was detd. with an Ostwald viscometer, and the erythrocyte aggregation was examd. on the basis of the erythrocyte sedimentation rate cor. for the hematocrit. The effect of the **dextran** fractions and plasma diln. on the erythrocyte aggregation was also studied in vitro, also on the basis of the erythrocyte sedimentation rate. Infusion of Rheomacrodex reduced the hematocrit and erythrocyte aggregation and decreased the plasma viscosity slightly, but only when this was very high; otherwise there was a slight increase. Infusion of Macrodex reduced the hematocrit, but slightly **increased** the **plasma viscosity** and erythrocyte aggregation. Infusion of glucose soln. reduced the hematocrit, plasma viscosity, and erythrocyte aggregation. However, the changes were slight and presumably of short duration. The in vitro expts. suggest that the redn. in aggregation obtained on infusing Rheomacrodex was due to diln. of the plasma as well as to a deaggregating effect of this **dextran** fraction, and that the slight increase in aggregation produced by infused Macrodex despite plasma diln. was due to an aggregating effect of this **dextran** fraction.

L8 ANSWER 88 OF 112 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1972:94819 CAPLUS
DN 76:94819
TI Effects of artificial expander agents on blood viscosity. Comparison with human albumin and PAMEG[poly[.gamma.-(N-2-morphinylethyl)-.alpha.,L-glutamamide]] (synthetic polypeptide of glutamic acid)
AU Gregersen, Magnus I.
CS Coll. Physicians Surg., Columbia Univ., New York, NY, USA
SO Dextrans, Int. Symp., 1st (1971), Meeting Date 1968, 27-38. Editor(s): Derrick, John R. Publisher: Thomas, Springfield, Ill.
CODEN: 24GRA5
DT Conference
LA English
AB **Dextran** of mol. wt. 37,500 has less effect on blood viscosity than any other artificial expanders such as hydroxyethyl starch and poly(pyrrolidinone) [24968-97-6] in the so-called low mol. wt. range. None of the artificial expanders examd. in vitro, including the lowest mol. wt. **dextran** Dx 10, decreased the viscosity of normal human blood. Human plasma albumin caused a smaller increase in viscosity than any of the artificial expanders of comparable mol. size. When poly[.gamma.-(N-2-morphinylethyl)-.alpha.,L-glutamamide] was dissolved in **blood plasma**, the av. **increase** in **viscosity** was 157%. The viscosity at 0.1/sec of a 45% red cell suspension in Ringer's soln. was 9.9 centipoise (cps). After the addn. of 4 g % albumin the viscosity was 11.6 cps, but when 4 g % PAMEG was substituted for the albumin, the viscosity was 208 cps. PAMEG is apparently far from being equiv. viscometrically to albumin in its effects on whole blood or on suspensions of washed red cells.

L8 ANSWER 79 OF 112 MEDLINE on STN
AN 76252425 MEDLINE
DN 76252425 PubMed ID: 1231697
TI Effect of low molecular **dextran** on the microrheological properties of erythrocytes.
AU Ehrly A M; Vogeler C
SO BIBLIOTHECA ANATOMICA, (1975) 13 122-6.
Journal code: 0372510. ISSN: 0067-7833.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 197609
ED Entered STN: 19900313
Last Updated on STN: 19900313
Entered Medline: 19760925
AB The beneficial effect of low molecular **dextran** (Rheomacrodex) on the impaired micro-circulation was said to be the consequence of a decrease in the viscosity of blood due to hemodilution. In the present paper we report about the role of low molecular **dextran** on the flow properties of erythrocytes in-vitro. Blood samples of healthy volunteers were introduced in a standardized 8 mum-filter system and the flow rate through these filters was measured. Additional rheological measurements were performed simultaneously. In other blood samples different parts of the plasma were replaced by a iso-osmolar, iso-oncotic and iso-viscous Rheomacrodex solution. It was clear visible that the number of erythrocytes flowing through the 8 mum-filter within a given time had markedly increased when low molecular weight **dextran** was present in the suspension medium. Even when the equal parts of the natural plasma was replaced by undiluted 10% Rheomacrodex solution the filtration of erythrocytes had significantly **increased**, inspite of the higher **viscosity** of the whole **blood** compared to the blanks.- We are certain that this new microcirculatory effect is the consequence of an increased deformability of the red cells. The theoretical and clinical significance of these results have been discussed.

L8 ANSWER 50 OF 112 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1986:440047 CAPLUS
DN 105:40047
TI Hemorheological effects of different solutions of **dextran**, albumin, gelatin and hydroxyethyl starch
AU Heinen, A.; Brunner, R.; Hossmann, V.
CS Med. Klin. II, Univ. Koeln, Cologne, D-5000/41, Fed. Rep. Ger.
SO Clinical Hemorheology (1986), 6(2), 167-73
CODEN: CLHEDF; ISSN: 0271-5198
DT Journal
LA English
AB The influence of different mol. wt. dextrans (mol. wt. 6000, 10,000, 40,000, and 70,000), hydroxyethyl starch, gelatin, and albumin on plasma viscosity, apparent whole human blood viscosity, and erythrocyte flexibility was studied in vitro. Compared to blood samples incubated 2 h with Ringers soln. alone, dextrans of 40,000 and 70,000 mol. wt. caused the most pronounced **increase** in **plasma viscosity**, erythrocyte aggregation, and decrease in erythrocyte flexibility. For albumin, hydroxyethyl starch, and gelatin these effects were less, but still significant in comparison to the control measurements. The com. available **dextran** solns. for clin. use vary widely with respect to their mol. wt. (>90% of the total amt. within the range of 10,000-80,000). The **increase** in apparent whole **blood viscosity** after repeated infusions may be due to an **increase** of high-mol.-wt. components, which accumulate in plasma during prolonged infusions with low-mol.-wt. dextrans.

L8 ANSWER 41 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 27
AN 1989:221063 BIOSIS
DN BA87:112680
TI EFFECTS OF **DEXTRAN**-INDUCED HYPERVISCOSITY ON REGIONAL BLOOD FLOW AND HEMODYNAMICS IN DOGS.
AU CHEN R Y Z; CARLIN R D; SIMCHON S; JAN K-M; CHIEN S
CS DEP. OF AMES-BIOENG., UNIV. OF CALIF. SAN DIEGO, LA JOLLA, CALIF. 92093.
SO AM J PHYSIOL, (1989) 256 (3 PART 2), H898-H905.
CODEN: AJPHAP. ISSN: 0002-9513.
FS BA; OLD
LA English
AB In 10 pentobarbitalized dogs, **plasma viscosity** (Ep) was raised fourfold while apparent **blood viscosity** (Ea) **increased** about twofold by two steps of exchange transfusion of 200 ml of plasma with plasma containing high molecular weight **dextran** (mol wt 500,000, 20% w/vol). Elevation of Ea was primarily caused by an increase of Ep but not red cell aggregation. As Ea increased, regional blood flow (by 15-.mu.m microspheres) remained constant in most organs but reduced in the small intestine, spleen, and thyroid gland. Vascular hindrance (Z), which reflects the state of vascular geometry, was calculated as flow resistance per Ea. Among various organs, a reduction in Z was noted in the heart, liver, pancreas, kidney, brain, and adrenal gland. In myocardium, there was a progressive reduction of the endocardal-to-epicardial flow ratio, indicating a less profound vasodilation in endocardium than epicardium. These results indicate that **dextran**-induced hyperviscosity leads to a compensatory vasodilation in several vital organs thus serving to maintain blood flow and nutrient transport.

ANSWER 35 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 22
AN 1991:481844 BIOSIS
DN BA92:115604
TI ORGAN PERFUSION AND TISSUE OXYGENATION AFTER MODERATE ISOVOLEMIC HEMODILUTION WITH HES 200-0.62 AND **DEXTRAN**-70.
AU BRUECKNER U B; MESSMER K
CS SEKTION CHIRURGISCHE FORSCH., CHIR. KLINIK I, UNIVERSITAET ULM, OBERER ESELSBERG M 25, W-7900 ULM, BUNDESREPUBLIK DEUTSCHLAND.
SO ANAESTHESIST, (1991) 40 (8), 434-440.
CODEN: ANATAE. ISSN: 0003-2417.
FS BA; OLD
LA German
AB Oxygen delivery (systemic oxygen transport) is directly dependent upon cardiac output and oxygen content of the blood. The rheology of blood, however, represents a co-determinant of oxygen delivery. It has recently been argued that the **increase** in **plasma viscosity** occurring under hemodilution with **dextran** could be detrimental to blood flow and, hence, tissue oxygenation. Methods: Twelve splenectomized beagles (12.5 .+-. 1.7 kg) were anesthetized and randomly assigned to hemodilution to 20 vol% hematocrit (hct) with 6% hydroxyethyl starch (HES 200/0.62) or 6% **dextran** -70 (DX-70). The effects of hemodilution (HD) upon macrohemodynamics, plasma and blood volumes (131I dog albumin distribution), organ blood flow (radioactive-labelled microsphers, .vphi. 15 .mu.m), and local tissue oxygenation (pO2 multiwire surface electrode) were evaluated with special reference to any actual plasma viscosity. Results: Moderqate HD with either solution resulted in equivalent changes in macrohemodynamics and plasma and blood volumes. Tissue oxygen extraction increased ($p < 0.05$) due to a small rise (maximally 28%) in cardiac output. HD with either solution resulted in an **increase** in **plasma viscosity** that was more pronounced in the DX-70 group (1.45 .+-. 0.07 mPa.cntdot.s) as compared to HES-diluted animals (1.16 .+-. 0.04 mPa.cntdot.s). Blood flow increased ($p < 0.01$) in all organs after HD independently of the diluent. Both higher pO2 values on the surface of liver and skeletal muscle ($p < 0.01$) as well as a shift of the pO2 histograms to the right indicated a more homogeneous tissue perfusion during HD. Conclusions: In normotensive animals without peripheral arterial occlusive disease undergoing moderate hemodilution, organ blood flow was independent of plasma viscosity. Systemic oxygen transport was not affected by plasma viscosity changes, but is primarily determined by systemic hct. Local surface tissue oxygenation on skeletal muscle and liver was not impaired, but rather **improved** during hemodilution despite raised **plasma viscosity**. Of the rheological factors influencing oxygen delivery, hct thus plays the predominant role while plasma viscosity is of minor importancce.

L8 ANSWER 36 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 23

L8 ANSWER 10 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 2000:545873 BIOSIS
DN PREV200000545873
TI Plasma viscosity and cerebral blood flow.
AU Tomiyama, Yoshinobu; Brian, Johnny E., Jr. (1); Todd, Michael M.
CS (1) Dept. of Anesthesia, Univ. of Iowa Health Center, 200 Hawkins Dr., 6 JCP, Iowa City, IA, 52242 USA
SO American Journal of Physiology, (October, 2000) Vol. 279, No. 4 Part 2, pp. H1949-H1954. print.
ISSN: 0002-9513.
DT Article
LA English
SL English
AB We hypothesized that the response of cerebral blood flow (CBF) to changing viscosity would be dependent on "baseline" CBF, with a greater influence of viscosity during high-flow conditions. Plasma viscosity was adjusted to 1.0 or 3.0 cP in rats by exchange transfusion with red blood cells diluted in lactated Ringer solution or with **dextran**. Cortical CBF was measured by H2 clearance. Two groups of animals remained normoxic and normocarbic and served as controls. Other groups were made anemic, hypercapnic, or hypoxic to increase CBF. Under baseline conditions before intervention, CBF did not differ between groups and averaged 49.4 +- 10.2 mlcntdot100 g-1cntdotmin-1 (+-SD). In control animals, changing plasma viscosity to 1.0 or 3.0 cP resulted in CBF of 55.9 +- 8.6 and 42.5 +- 12.7 mlcntdot100 g-1cntdotmin-1, respectively (not significant). During hemodilution, hypercapnia, and hypoxia with a plasma viscosity of 1.0 cP, CBF varied from 98 to 115 mlcntdot100 g-1cntdotmin-1. When plasma viscosity was 3.0 cP during hemodilution, hypercapnia, and hypoxia, CBF ranged from 56 to 58 mlcntdot100 g-1cntdotmin-1 and was significantly reduced in each case ($P < 0.05$). These results support the hypothesis that viscosity has a greater role in regulation of CBF when CBF is **increased**. In addition, because CBF more closely followed changes in **plasma viscosity** (rather than whole **blood viscosity**), we believe that plasma viscosity may be the more important factor in controlling CBF.

L8 ANSWER 29 OF 112 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1994:570091 CAPLUS
DN 121:170091
TI Does elevated plasma viscosity alter tissue oxygenation and organ blood flow?
AU Krieter, H.; Kefalianakis, F.; Brueckner, U. B.; Messmer, K.
CS Chir. Klin., Univ. Heidelberg, Heidelberg, W-6900, Germany
SO Chirurgisches Forum fuer Experimentelle und Klinische Forschung (1993) 481-5
CODEN: CFEKA7; ISSN: 0303-6227
DT Journal
LA German
AB The administration of colloids (e.g., **dextran**) for blood replacement induced hyperviscosity of the plasma. To evaluate the clin. relevance of this phenomenon, the effects of artificially elevated plasma viscosity on organ blood flow and tissue oxygenation were investigated in a canine model. Plasma viscosity was raised to 2 and 3 mPas, i.e., 2 and 3 times the normal value, by infusion of 4% of the blood vol. of a high mol. wt. **dextran** (500 000 Da). Organ blood flow was measured by the microsphere (015 .mu.m) technique, while the distribution of the pO2 values on the surface of the liver was detd. by a multiwire platinum electrode (MDO). Despite the tremendous **increase** in **plasma viscosity**, both the cardiac output and the organ **blood** flow were highest at a **viscosity** of 3 mPas. Simultaneously, the hematocrit dropped to 24 and 20 vol. %, resp. The mean pO2 value on the liver surface peaked at a viscosity of 2 mPas and returned to baseline when the plasma viscosity reached 3 mPa. Hence it follows that the redn. in hematocrit not only compensates the higher plasma viscosity, but governs the blood rheol. Thus, the slight changes in plasma viscosity obsd. during the administration of colloids in the clin. setting will never induce neg. effects on organ blood flow or tissue oxygenation.

L8 ANSWER 21 OF 112 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 12
AN 1995:202056 BIOSIS
DN PREV199598216356
TI Does colloid-induced plasma hyperviscosity in haemodilution jeopardize perfusion and oxygenation of vital organs.
AU Krieter, Heiner (1); Brueckner, U. B.; Kefalianakis, F.; Messmer, K.
CS (1) Abteiling fuer Experimentell Chirurgie, Universitaetsklinik Heidelberg, Im Neuenheimer Feld 347, D-69120 Heidelberg Germany
SO Acta Anaesthesiologica Scandinavica, (1995) Vol. 39, No. 2, pp. 236-244. ISSN: 0001-5172.
DT Article
LA English
AB Background and Methods: The infusion of **dextran** solutions is associated with haemodilution and, under some conditions, with a slight **increase** in **plasma viscosity**. To clarify the compound effects of simultaneous hemodilution and **plasma viscosity increases** on macro- and microhaemodynamics, we investigated the changes in arterial perfusion (radiolabelled microspheres, 15 mu-m O) and oxygenation (tissue PO-2) of vital organs using an animal model of plasma hyperviscosity. In nine splenectomized beagles **plasma viscosity** was **increased** step by step from 1.06 (baseline) to 2.14, and 2.99 mPa cntdot s by infusion of small amounts (4% of total blood volume) of an ultra-high-molecular-weight **dextran** (50% w/v, mw: 500,000). Results: Despite the significant **increase** in **plasma viscosity**, cardiac output as well as specific organ blood flows in heart, brain, liver, and muscle rose steadily with each step of viscosity, while the haematocrit declined from 0.31 to 0.24 and 0.20, respectively. Medians of tissue PO-2 in liver peaked at a viscosity of 2 mPa cntdot s and returned to baseline values at 3 mPa cntdot s, whereas in non-working skeletal muscle PO-2 values were maximal at 3 mPa cntdot s. Conclusion: These results indicate that the impact of plasma viscosity on the rheological properties of whole blood is completely offset by the concomitant reduction of haematocrit. Thus, the comparatively minor changes in plasma viscosity observed after prolonged use of clinical dextrans and other colloids in no way compromise the perfusion and oxygenation of vital organs.

L8 ANSWER 79 OF 112 MEDLINE on STN
AN 76252425 MEDLINE
DN 76252425 PubMed ID: 1231697
TI Effect of low molecular **dextran** on the microrheological properties of erythrocytes.
AU Ehrly A M; Vogeler C
SO BIBLIOTHECA ANATOMICA, (1975) 13 122-6.
Journal code: 0372510. ISSN: 0067-7833.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 197609
ED Entered STN: 19900313
Last Updated on STN: 19900313
Entered Medline: 19760925
AB The beneficial effect of low molecular **dextran** (Rheomacrodex) on the impaired micro-circulation was said to be the consequence of a decrease in the viscosity of blood due to hemodilution. In the present paper we report about the role of low molecular **dextran** on the flow properties of erythrocytes in-vitro. Blood samples of healthy volunteers were introduced in a standardized 8 mum-filter system and the flow rate through these filters was measured. Additional rheological measurements were performed simultaneously. In other blood samples different parts of the plasma were replaced by a iso-osmolar, iso-oncotic and iso-viscous Rheomacrodex solution. It was clear visible that the number of erythrocytes flowing through the 8 mum-filter within a given time had markedly increased when low molecular weight **dextran** was present in the suspension medium. Even when the equal parts of the natural plasma was replaced by undiluted 10% Rheomacrodex solution the filtration of erythrocytes had significantly **increased**, inspite of the higher **viscosity** of the whole **blood** compared to the blanks.- We are certain that this new microcirculatory effect is the consequence of an increased deformability of the red cells. The theoretical and clinical significance of these results have been discussed.